CHAPTER 4 BRIDGES

4.1. Introduction

Data collection for bridge inventory and condition assessment has many possibilities due to the complex nature of bridges as a highway feature. Perhaps somewhat unlike other areas, the inventory of bridge assessment data has been fairly extensive and growing for over 30 years under the Bridge Inspection Program and most states collect data far beyond the minimum requirements to support their Bridge Management Systems. However, enhanced methods of collecting inventory and condition assessment data is desirable to increase the completeness and quality of the data. Another high priority issue is the need for safety of the bridge inspectors as affected by traffic and during inspection of difficult to access locations on the bridge.

Bridges are complex to the extent that an approach of using a single data collection vehicle passing over or under a bridge cannot begin to fully inspect a bridge. Thus planning for the workshop presentations and exhibits allowed for a broad range of data collection technologies, updates on bridge assessment research, and new efforts in bridge management systems.

Typical bridge inspections primarily use visual inspection, ideally at arms length, supplemented by manual tools to collect inventory and condition data. When potential problems are identified, special inspections are made using various NDE devices. An extensive list of potential technologies was developed as examples for vendors who might have new advances to offer. Condition concerns included, but were not limited to, chloride content, alkali-silica reaction, corrosion, deck delamination, concrete cover, steel corrosion, fatigue cracking, voids, material deterioration, pile length, scour and underwater condition.

In planning for possible vendor demonstrations of new technologies for condition assessment, bridges with known deficiencies were needed. The NCDOT Bridge Management Unit reviewed the bridges located on the test loop and found that all were in relatively good condition and would not be good candidates for demonstrating new technologies. As a result, several bridges off the test lrack, but in the Raleigh vicinity were identified for the purpose such as the examples shown in Figure 4.1 through Figure 4.3.

As advanced preparation, the NCDOT Bridge Management Unit collected additional data on the bridge condition, particularly the deck condition for possible comparison to vendor technology data. However, in the end, the participating vendors' collection data were limited to the collection of bridge geometry data which could be demonstrated on the test loop. Presentations during the workshop covered a broader range of bridge assessment topics.